REMARKS/ARGUMENTS

Reconsideration of this Application and entry of this Amendment is respectfully requested.

Objections to the Drawings

The drawings are objected to for failing to show "an electric field of approximately 20keV/micron to prevent flashover" as recited in the claims. This objection is respectfully traversed. The requirement of 37 C.F.R. § 1.83 that every feature specified in the claims must be shown in the drawings should be considered in view of 37 C.F.R. § 1.81, which reads that drawings are only required "where necessary for the understanding of the subject matter to be patented." Further, M.P.E.P. § 608.02(d) clarifies that 37 C.F.R. § 1.83 should be applied when structural features are omitted from the claims. "Any structural detail that is of sufficient importance to be described should be shown in the drawing[s]." An indicator representing an electric field having a particular value or range is neither structural nor necessary for understanding the present invention. Thus, it is respectfully requested that the objection to the drawings be withdrawn.

35 U.S.C. § 1.132(a) (New Matter) Rejection

The amendment filed February 7, 2005 is objected to as allegedly introducing new matter by presenting in the claims the phrase "an electric field of approximately 20 keV/micron to prevent flashover." This objection is respectfully traversed. Passages at page 6, lines 12 to 25, and page 7, lines 14 to 21 clearly establish the importance of the present invention to provide a delivery of x-ray radiation at about 8 to 10 keV, and that such radiation requires an electric field of about 20 keV/micron. Further, the passage at page 10, lines 20 to 25 recites that a diamond film that is part of an embodiment of the present invention emits electrons at electrical fields of at least 20 keV/micron, which is much lower than the conventional electrical field. Throughout the specification (e.g. page 6, line 22 to page 7, line 4) it is clear that lowering the electrical field to deliver x-ray radiation using the inventive features recited in the specification and claims prevents flashover. Thus, it is respectfully requested that the new matter objections be withdrawn.

35 U.S.C. §112, First Paragraph Rejections

Claims 50 and 55 to 60 are rejected because the phrase "an electrical field of approximately 20 keV/micron to prevent flashover" is allegedly not described in the specification. These rejections are respectfully traversed for the same reasons set forth above regarding the new matter rejections.

35 U.S.C. §112, Second Paragraph Rejections

Claims 49 to 50 and 55 to 60 are rejected because the phrases "coaxial cable is capable of delivering a direct current voltage" and "20 keV/micron" are allegedly indefinite. Claim 49 is canceled by way of the present amendment, thus rendering the rejection moot.

The phrase "20 keV/micron" is a vector quantity defined following the standard units for electrical fields (i.e. voltage units over distance units). The term is readily understood as following the established electric field units, and there is no need to include the additional verbiage suggested by the Examiner to define the electric field.

35 U.S.C. § 103(a) Rejections

Claims 47 to 53, 55, and 59 to 60 are rejected as being unpatentable over U.S. Patent No. 5,090,043, now Reissue 34,421 ("Parker") in combination with U.S. Patent No. 4,834,100 ("Charms"). These rejections are respectfully traversed.

Independent claim 47 recites, inter alia, "an x-ray source having a vacuum chamber defined by a chamber wall and containing an anode and cathode for generating an electrical field, ... and a conductive layer overlying a portion of the vacuum chamber... ." None of Parker, Charms, and the combination of the two, discloses the feature of a conductive layer overlying a portion of a vacuum chamber defined by a chamber wall. For a description of this feature, see the conductive layers 44, 52 overlying chamber walls in FIGs. 1 and 2 (i.e. the chamber wall 36 in FIG. 1).

In contrast, Parker discloses in FIG. 10 a vacuum chamber defined by a chamber wall 90. An anode conductor 108 is separated from the vacuum chamber wall by a cooling chamber 96 and also by a gap between the conductor 108 and the cooling chamber 96. Also note that the embodiments depicted in FIGs. 8G and 8H have an anode conductor separated from the vacuum chamber wall by a gap. Thus, Parker fails to disclose a conductive layer overlying a portion of a

vacuum chamber as recited in the claims. Charms fails to compensate for this deficiency, as Charms does not discuss the structural features of a vacuum chamber. Consequently, none of the prior art cited against claim 47 teaches or suggests each and every feature recited in this independent claim. It is respectfully submitted that the obviousness rejection of claim 47, and all claims depending therefrom, be withdrawn.

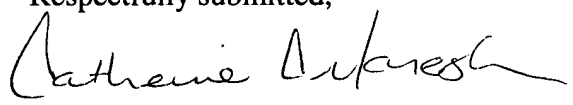
Regarding independent claim 55, the claim is directed to a device that is suitable "for insertion into a patient's cardiovascluar system" that includes "a housing for the x-ray source having a diameter of less than 3 millimeters." The Examiner asserts that the Parker micro-tubes illustrated in FIG. 8 are as small as 1/8 inch in diameter, and are therefore would require just more than a 5% change in diameter in order to meet the language of claim 55. However, reading Parker as a whole it is clear that the Parker micro-tubes by themselves are not intended to be inserted into a patient's cardiovascular system in the bare forms shown in FIG. 8. Although Parker indicates that the microtubes can be inserted into various body orifices and incisions (page 9, lines 51 to 60), and can be directed on a catheter (page 9, lines 57 and 58), it is clear from the overall specification that the Parker microtubes become hot during use and therefore preferably require additional mechanical shielding and electrical insulation for use in the body. For this reason, the embodiments illustrated in FIGs. 10 and 11 include cooling chambers and additional electrical insulating layers. For this reason, Parker fails to teach an embodiment such as those illustrated in FIGs. 1 and 2 of the present application wherein the housing has a diameter of less than 3 millimeters (claim 55). For this reason, it is respectfully submitted that the rejection of claim 55, and all claims depending therefrom, should be withdrawn.

Dependent claims 54, and 56 to 58 are rejected as being unpatentable based on Parker and Charms in combination with Suzuki and Houston. These rejections are respectfully traversed for the above-stated reasons, as neither Suzuki nor Houston is cited for, or teaches or suggests, the features of independent claims 47 and 55.

Conclusion

For the foregoing reasons, Applicant believes all the pending claims are in condition for allowance and should be passed to issue. The Commissioner is hereby authorized to charge any additional fees which may be required under 37 C.F.R. 1.17, or credit any overpayment, to Deposit Account No. 01-2525. If the Examiner feels that a telephone conference would in any way expedite the prosecution of the application, please do not hesitate to call the undersigned at telephone (707) 543-0221.

Respectfully submitted,



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